2013/24 ATKT

(1)

CLASS :- SYCS
COURSE :- DATA STRUCTURES

DURATION :- 2 ½ HRS.
MARKS :- 75

Q1. Attempt any Four from the following. **(20 Marks)**

a) Explain different Abstract data types. (CO 1-U)
b) Write the difference between Stack and Queue. (CO 1-A)
c) Explain different applications of stack. (CO 1-U)
d) Explain Linked list and their types. (CO 1-U)
e) Solve the expression :- a) d-(c/d+e) b) (1+2)(3*4) (CO 1-A)
f) What is single linked list? Explain their advantages and disadvantages. (CO 1-RU)

Q2. Attempt any Four from the following. **(20 Marks)**

a) Explain Advantages & Disadvantages of Doubly Linked list. (CO 2-U)
b) Explain Binary Search Tree with an example. (CO 2-U)
c) What are AVL Trees? Explain how we Balance AVL Trees. (CO 2-U)
d) Explain the difference between Priority Queues & Heaps. (CO 2-A)
e) What is Heapsort? Explain two different types of HeapSort. (CO 2-RU)
f) What is a Threaded binary tree? (CO 2-R)

Q3. Attempt any Four from the following. **(20 Marks)**

a) What is a Graph? Explain different types of graphs. (CO 2-RU)
b) Explain Graph representation using adjacency matrix and adjacency list, (CO 2-U)
c) Write Graph operations like insertion and deletion of nodes. (CO 2-U)
d) Write DFS in detail with an example. (CO 2-U)
e) What is Hashing? Explain different types of Hashing in brief. (CO 2-RU)
f) Explain different Applications of hashing. (CO 2-U)

Q4. Attempt any Five from the following. **(15 Marks)**

a) Convert the following infix expression into prefix and postfix expressions. (CO 3-A)
   i) (e*3xf)+g/h
   ii) a*b/c(d/e)
b) Explain the following terms: (CO 3-R)
i. Degree of a node
ii. Height of a tree
Iii. Depth of a tree
c) List different hashing methods.Explain with example. (CO 3-U)
d) Explain BFS in detail. (CO 3-U)
e) Write a short note on 'collision avoidance techniques'. (CO 3-R)
f) Explain application of binary tree. (CO 3-U)

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